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THE FALLACY OF EXTENDING SERVICE CONNECTIONS TO THE CURB LINE PREVIOUS TO PAVING[1]

BY JOHN WILSON

If there is one thing upon which municipal engineers are united, it is in an effort to minimize the destruction of pavements by tearing them up for the purpose of laying subsurface conduits, piping, etc. The principal difficulty in the solution of this problem is due to the fact that it is impossible to ascertain beforehand to just what extent and in what manner unimproved property will eventually be improved.

Probably the most common method of overcoming these difficulties, and strange to say one that meets with general approval, is often embodied in a clause in the official order under which the work is done which reads about as follows: "And that all water, gas and sewer service pipe, where not already in, be extended to the curb line, and the cost thereof be assessed to the property benefited."

In compliance with an order of this kind there is practically but one thing to do and that is install a connection to every platted lot or piece of ground upon which a building may be constructed in the future. Thus, assuming the average width of lot as 35 feet, the water main will be tapped on each side and a service connection extended to the curb at intervals of that distance.

The cost of making such connections will vary widely according to the width of the improvement and the character of the excavation, but may in general be considered at about $18 for a $\frac{5}{8}$-inch pipe complete. The pavement surface necessary to disturb at a later date to install a similar connection we will estimate as 6 square yards. It is then apparent that the expenditure at the time of paving to insure the surface against being molested is approximately $3 per square yard, less whatever value the connection itself may have. In view of the fact that the above price is very nearly the cost of tearing up the pavement and replacing it, that the public is saved the inconvenience due to the opening in the street, and that the connection is available for use without further expense to the owner of the adjacent property, for all that portion of the service between the main and the curb, the practice would seem to be nothing more or less than good business foresight.

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[1] Read before the Minnesota Section at Minneapolis on December 2, 1916.

The very purpose and intent of a plat is to provide a definite piece of land for each individual householder, or a definite building site for each business house, etc. However, one man may utilize three lots in building his home, another may use a lot and a half, other lots may be re-subdivided and abut on other streets from those originally intended, or large buildings requiring the use of automatic sprinklers may be constructed, while there will always be a certain number of lots remaining entirely unimproved for a period exceeding the useful life of the pavement. Consequently, for one reason or another, many connections that are installed under such conditions will be wrongly placed, will be of a size unsuited for the service required or will be entirely useless, and, in fact, it is doubtful if over one-fourth of these connections are ever used at all.

For the sake of argument, we will assume that one-fourth of these connections are actually used within a period of 15 years from the date of installation, and that money is worth 6 per cent, also that the cost of tearing up and restoring the pavement surface to its original condition is $3 per square yard. Thus, in order to save the expense of restoring 6 yards of paving at a total cost of $18, an expenditure of $7.50 would be justified and a similar amount for the service connection in place, allowing nothing for depreciation. Our total expense for the four connections at $18 each, will be $72, whereas an expenditure not exceeding $15 was justified. This means that for every connection actually used there is a direct financial loss of $55 incurred by this system of blindly installing a connection to every lot.

Throughout the above discussion it is assumed that the placing of these connections previous to paving does tend to preserve the pavement surface and reduce the cost of maintenance, nevertheless every municipal engineer recognizes these newly constructed ditches as one of the most prolific sources of paving difficulties. It is almost impossible to secure satisfactory consolidation of the backfill in a large number of these trenches, and their elimination, as far as possible, is the most effective means of reducing paving maintenance.

For some reason or reasons, these unused connections seem subject to breaks and leaks to a much greater extent than those in actual service, and the annual loss of water, together with the damage done adjacent improvements and structures, is an item well worth considering. And in fact I believe that there are as many openings made in the pavements for the purpose of shutting off unused and leaky connections at the main as are ever eliminated by our mistaken foresight, which so often, like the Irishman's, "comes after."

Every water works superintendent has had more or less experience with the so-called springs under the street or roadway, which will finally turn out to be nothing more or less than a leak and the chances are about two to one it is in a service connection.

I remember one case where, the phenomenon of a spring on top of a fill of about 10 feet being pointed out to me, my suspicions were at once aroused, and it was only a few days before the spring had entirely dried up, notwithstanding the fact that it had been there as long as some of the adjacent property owners could remember. I have in mind another spring that I was somewhat suspicious of but was told that it had been there from the time the street had been graded; it was also pointed out that the water was perfectly clear, whereas, the city water contained much iron and would produce a red stain in the gutter. However, we finally located a leak, which, strange to say, was about 400 feet away and on another street. The water followed along an old ditch that had been filled in and finally found its way to the surface, and in the meantime had become pretty thoroughly filtered and all the iron removed.

If the public and the average city or village council were better informed as to the cost and nature of service connections, street maintenance would be materially simplified, property owners would be saved a very considerable expense as well as the water department or corporation, as the case may be.

It seems to me that a far better plan for all concerned is to leave the installation of these services entirely in the hands of the water department, which should install only such connections as they are reasonably sure will be utilized. And if other connections are required, which necessitate the opening of the pavement, this should be done by the street-paving department, which should take all reasonable precautions to do its work in such a way as to avoid after-settlement and insure a surface equal to that of the surrounding pavement. The cost of such work should be charged to the water department which in turn may be reimbursed by the parties for whose benefit the work has been done. In this way a paver will not be responsible for a water-works job or a water-works man responsible for the condition of the pavement, but each will confine himself to his own work, with resulting profit to all concerned.

In the meantime water superintendents could do valuable service in perfecting their accounting system as to cost and nature of maintenance, which would go a long way toward pointing out the proper procedure in regard to all such matters.